Micrcom Design Responses to Proposed Changes to High Data Rate Certification Requirements

A. Timing accuracy to 0.25 seconds is acceptable. This accuracy will not be useful until the next generation after DAPS-II.

B. This paragraph is not applicable to the high data rate certification. It only applies to the 100 BPS with a long preamble. This is necessary for international compatibility.

C. Acceptable.

D. The 16-32 bit change is acceptable. What are the specifications applicable to a 1 ms turn-off time? 3 dB down, 60 dB down? Needs a definitive requirement.

E. Tests during the qualifications of the DAMS-NT suggested some improvement in error rate using the interleaver, specifically at low S/N and short messages. Since the interleaver does not impact GOES-R, it is requested that the decision to delete the interleaver be delayed until definitive tests can be completed.

F. For ASCII and Pseudo Binary formats, the prohibited character should be maintained until final test of DAPS-II is complete. Presently DAPS-I will accept the prohibited characters, but the DAMS-NT interface was required to substitute ASCII characters for the prohibited characters to keep DAPS-II from bombing. To utilize a true binary format with the present DAPS-II ICD would require decoding the binary data ahead of DAPS-II.

G. The definition of the Binary EOT should be deleted since the specified EOT is not unique. Its specification should be left open to allow the binary format to be defined without any arbitrary restrictions.

H. This is acceptable in light of Q below.

I. Acceptable.

J. The change from “Typical” (“Nominal” per the document) to “Minimum” makes no sense. If any change is made it should be to “Maximum”. The acceptable minimum EIRP should be at the discretion of the user based on the importance of the data from a specific DCP.

K. As stated at the March meeting a change to 1500 Hz channel spacing for 1200 BPS would require a transition to the RRC filter in both the transmitter and the demodulators. To accommodate this change would require another changeover comparable to the transition from 100 BPS to HDR. The presently configured system will support a 2250 Hz channel spacing at 1200 BPS and a 750 Hz channel spacing at 300 BPS..

L. A frequency stability of ±100 Hz is adequate to support 750 Hz, and 2250 Hz channel spacing with the present GOES transmitters and demodulators as suggested in K above.

M. An exception is taken to combining Modulation Stability (M) and Phase Noise (N). As with any statistical parameter, both the first order (average) and second order (RMS) values are significant. These requirements are not significant to the transmitter, but are critical to the performance of the demodulator at low S/N. Also, the specification on carrier phase noise should be retained.

N. See M above.

O. Because of the extreme impact on users and system utilization, it is recommended that the requirements for an RRC filter be eliminated. As stated in K and L above, the present narrow band spectrum is adequate to support reduced channel spacing without change to existing HDR transmitters or demodulators. The only more-stringent requirement of the proposed change is for the first and second sidebands. All other specifications reflect a relaxation of close-in spurious interference. Per the suggested test procedure, the present HDR transmitter meets the first and second sideband requirement. Further, the reference to "P" is not completely understood. Does "P" relate to the transmitter power or the DCP EIRP? Changes in regard to the close-in spurious are not warranted, and in most cases the suggested changes represent an increase in spurious levels which could impact demodulator performance at low S/N. Why is an NTIA document applicable to the GOES DCP system?

P. Here again the proposed change will allow higher spurious. The present requirement is 60 dBc for all spurious and harmonics. For a 300 BPS transmitter with an 11 dB gain antenna, spur level would be reduced to 50 dB if "P" is presumed to apply to the transmitter power. Based on the nominal EIRP, the spur level would be 61 dBc. Which is applicable? It is recommended that 60 dBc requirement be retained. It is not understood how the requirements of ITU-R SM.329-10 and SM.1539-1 apply to the GOES DCP system. In fact, these requirements are not firm, but recommended. Since the requirements of the ITU-R in essence are less stringent, the reference should be eliminated.

Q. Acceptable.

R. The DCPI Link requirement of the HDR certification specification is applicable to the present interrogate mode. Should the DCPI be required, the requirements should be delineated in a separate certification document. Further, the modulation characteristics should result from a detailed study of the proposed utilization and system parameters. The use of CDMA should not be excluded. As presently conceived, the two features to be supported by the DCPI are power, frequency and timing control of DCPs. Realizing the full benefit from an upgraded DCPI link requires replacement of all DCPs.

S. No comment.

T. No comment.